

## State Indicators

# S-45 Business-Performed R&D as a Percentage of Private-Industry Output

### Description

This indicator represents the role of R&D in a state's business activity. The business sector is the largest performer of U.S. R&D. The overwhelming majority of business R&D performance is self-funded. A high value for this indicator indicates that the businesses within a state are making a large investment in their R&D activities in that state. Values for this indicator vary greatly across the nation, and business-performed R&D is often concentrated in a handful of states.

The methodology for data collection, assignment to individual states, and developing estimates of R&D funding and performance has changed during the last decade as the transition was made from the National Center for Science and Engineering Statistics' Survey of Industrial R&D to the Business R&D and Innovation Survey. The U.S. total for industrial R&D spending is consistent between these two surveys. Estimates for states with smaller economies are generally less precise than those for states with larger economies.

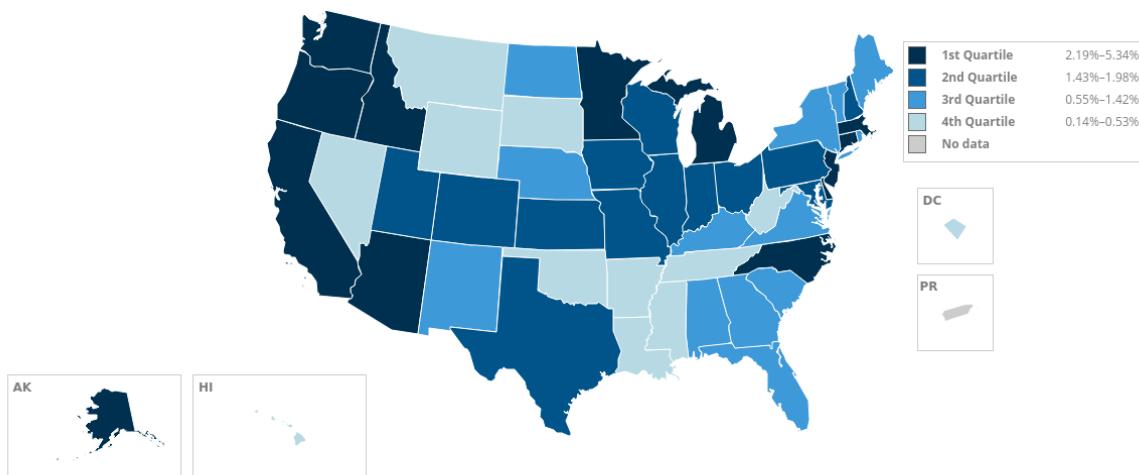
Private-industry output is the portion of state gross domestic product contributed by state businesses. Data for private-industry output come from the Bureau of Economic Analysis.

Data sources: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Industrial Research and Development and Business R&D and Innovation Survey; U.S. Bureau of Economic Analysis, Gross Domestic Product data.

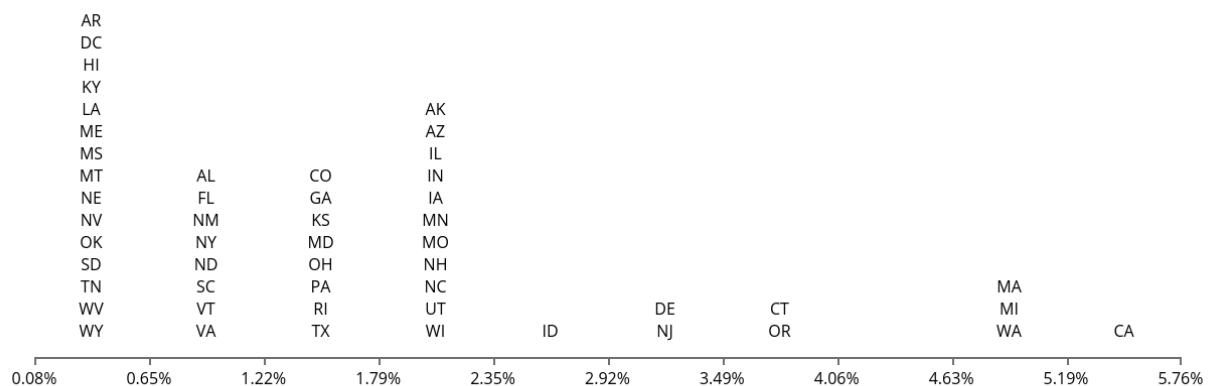
## State Indicators

# S-45 Business-Performed R&D as a Percentage of Private-Industry Output

2017



## Distribution of states across indicator values, 2017



Histograms do not display states with extreme values. Please consult the data tables for exact indicator values for each state. State positions on the histogram are based on unrounded values of the indicator and may not always match the rounded values displayed in the table.

## State Indicators

### Business-Performed R&D as a Percentage of Private-Industry Output

(Percent)

State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
United States	2.12	2.15	2.20	2.26	2.20	2.05	2.03	1.97	2.00	2.06
Alabama	0.68	0.92	0.85	0.82	0.88	0.79	0.89	1.00	1.08	1.33
Alaska	0.12	0.20	0.42	0.23	0.30	0.22	0.14	0.13	0.10	0.13
Arizona	1.62	1.45	1.56	1.52	1.82	2.06	1.56	1.45	1.50	1.66
Arkansas	0.22	0.39	0.55	0.66	0.41	0.35	0.40	0.39	0.35	0.35
California	3.63	3.27	3.48	3.78	3.70	3.38	3.49	3.27	3.29	3.54
Colorado	1.91	2.43	2.28	1.98	1.88	1.70	2.08	2.27	2.24	2.30
Connecticut	2.40	2.54	3.01	2.75	3.00	3.84	3.58	4.01	4.20	4.11
Delaware	3.37	4.05	3.51	3.70	2.90	2.95	3.00	2.27	3.21	2.90
District of Columbia	NA	1.75	0.72	0.50	0.57	0.43	0.50	0.35	0.30	0.48
Florida	0.98	0.87	0.87	0.88	0.83	0.77	0.62	0.63	0.67	0.62
Georgia	0.60	0.69	0.74	0.79	0.68	0.74	0.71	0.68	0.67	0.79
Hawaii	0.29	0.19	0.22	0.28	0.27	0.29	0.35	0.31	0.36	0.31
Idaho	4.72	4.19	4.25	4.17	2.78	3.02	2.18	1.83	1.57	1.43
Illinois	1.67	1.86	1.96	1.91	1.83	1.66	1.76	1.72	1.85	1.93
Indiana	1.74	1.75	1.64	1.57	1.94	1.86	1.81	1.97	2.10	2.14
Iowa	0.79	1.01	0.95	0.93	0.98	0.87	0.90	0.93	0.96	0.94
Kansas	1.76	2.04	2.05	1.79	1.71	1.83	2.07	2.17	2.24	2.14
Kentucky	0.40	0.64	0.78	0.77	0.63	0.62	0.55	0.49	0.54	0.65
Louisiana	0.17	0.36	0.47	0.31	0.26	0.21	0.22	0.21	0.17	0.20
Maine	0.32	0.49	0.70	0.80	0.75	0.72	0.56	0.56	0.89	0.62
Maryland	1.13	1.41	1.40	1.44	2.23	2.18	1.71	1.93	1.73	1.52
Massachusetts	3.94	4.68	4.15	4.18	4.43	3.91	3.94	4.00	4.32	4.83

## State Indicators

State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Michigan	4.86	4.49	5.58	5.57	4.62	4.22	4.58	4.48	4.80	4.71
Minnesota	2.25	2.26	2.37	2.34	2.51	2.47	2.61	2.52	2.92	2.82
Mississippi	0.15	0.36	0.42	0.44	0.39	0.39	0.33	0.25	0.29	0.32
Missouri	0.89	1.00	1.06	1.19	1.06	0.92	0.97	1.14	1.32	1.31
Montana	0.57	0.37	0.53	0.43	0.37	0.33	0.31	0.30	0.30	0.37
Nebraska	0.17	0.44	0.47	0.69	0.60	0.65	0.64	0.63	0.63	0.66
Nevada	0.70	0.82	0.76	0.63	0.40	0.45	0.47	0.44	0.36	0.46
New Hampshire	1.93	3.16	3.12	1.80	3.24	2.68	2.97	2.78	2.88	3.38
New Jersey	4.02	3.88	3.37	3.26	3.04	3.34	3.16	2.93	3.38	3.53
New Mexico	3.21	3.76	3.33	2.86	0.55	0.77	0.72	0.85	0.72	1.14
New York	1.56	1.56	1.75	1.57	1.40	1.17	1.07	1.04	1.05	1.00
North Carolina	1.76	1.62	1.63	1.89	1.77	1.43	1.65	1.61	1.69	1.65
North Dakota	0.25	0.32	0.66	0.55	2.18	0.91	1.17	1.95	0.50	0.54
Ohio	1.84	1.78	1.95	1.80	1.91	1.71	1.66	1.40	1.43	1.62
Oklahoma	0.65	0.54	0.80	0.61	0.67	0.50	0.66	0.43	0.40	0.41
Oregon	1.26	1.47	1.52	1.51	2.66	2.23	2.70	2.59	2.61	2.54
Pennsylvania	2.08	2.22	2.14	2.32	2.37	1.82	1.76	1.87	1.97	2.10
Rhode Island	2.87	5.08	4.78	3.97	3.69	3.44	3.50	3.57	3.60	3.26
South Carolina	0.94	1.13	0.98	1.09	0.91	1.00	0.89	0.85	1.17	1.10
South Dakota	0.16	0.23	0.32	0.46	0.43	0.23	0.31	0.28	0.25	0.34
Tennessee	0.80	1.65	1.42	1.02	0.91	0.75	0.84	0.85	0.62	0.68
Texas	1.35	1.57	1.43	1.53	1.44	1.55	1.51	1.37	1.42	1.38
Utah	2.11	2.12	1.83	1.78	1.89	1.73	1.49	1.49	1.53	1.39
Vermont	1.84	0.82	2.32	2.44	2.03	1.64	1.98	2.17	1.79	1.73
Virginia	1.00	1.33	1.29	1.22	1.25	1.21	1.37	1.47	1.47	1.54
Washington	3.99	3.92	3.56	4.01	4.35	4.05	4.19	3.84	3.84	4.17

## State Indicators

State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
West Virginia	NA	0.99	1.00	0.92	0.57	0.70	0.57	0.50	0.55	0.47
Wisconsin	1.25	1.33	1.43	1.50	1.48	1.54	1.46	1.39	1.37	1.45
Wyoming	0.23	0.16	0.50	0.26	0.18	0.13	0.21	0.12	0.13	0.10
Puerto Rico	NA									

NA = not available

**Note(s):**

The national total for business-performed R&D in the United States includes undistributed business-performed R&D and states with suppressed data. Please see source for information on estimation techniques. The national private industry output value for the United States does not include territories.

**Source(s):**

National Center for Science and Engineering Statistics, National Science Foundation, Survey of Industrial Research and Development, Business R&D and Innovation Survey, and Business Research and Development Survey (various years), data as of October 2019; U.S. Bureau of Economic Analysis, Gross Domestic Product data (various years), data as of May 2019.

Recommended Citation: National Science Board. "Business-Performed R&D as a Percentage of Private-Industry Output." Science and Engineering Indicators: State Indicators. Alexandria, VA: National Science Foundation. <https://ncses.nsf.gov/indicators/states/indicator/business-performed-rd-to-private-industry-output>. Accessed on [date of user access].

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*Science and Engineering Indicators*

## State Indicators

### Business-Performed R&D as a Percentage of Private-Industry Output

(Percent)

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United States	2.14	2.28	2.28	2.17	2.19	2.15	2.21	2.23	2.24	2.30
Alabama	1.25	2.16	1.14	1.01	1.26	0.83	0.98	1.22	0.94	1.00
Alaska	0.14	0.15	0.18	0.17	0.18	0.08	0.10	0.13	0.16	0.09
Arizona	1.68	2.34	2.24	1.91	2.23	2.15	2.20	2.24	2.14	2.39
Arkansas	0.40	0.52	0.85	0.32	0.38	0.33	0.29	0.31	0.29	0.35
California	3.75	3.89	3.90	3.78	4.20	4.34	4.49	4.67	4.79	5.01
Colorado	2.41	1.80	1.84	1.76	1.87	1.72	1.79	1.69	1.57	1.51
Connecticut	4.40	4.85	5.00	3.04	3.54	3.34	3.61	4.07	3.66	3.38
Delaware	2.90	NA	4.04	4.18	3.88	4.34	4.26	4.15	4.17	3.25
District of Columbia	0.61	0.86	1.03	0.35	0.59	0.35	0.65	0.43	0.36	0.38
Florida	0.68	0.64	0.69	0.80	0.92	0.78	0.83	0.79	0.74	0.75
Georgia	0.77	0.93	1.11	1.02	1.04	1.01	1.00	1.09	1.03	1.11
Hawaii	0.42	0.51	0.47	0.48	0.46	0.33	0.36	0.32	0.28	0.24
Idaho	1.57	2.02	2.22	2.37	2.41	2.18	2.35	2.63	2.71	2.65
Illinois	1.95	1.54	1.60	2.08	1.96	2.01	1.98	1.80	1.78	1.89
Indiana	2.03	2.03	2.24	1.98	2.36	2.24	2.31	2.00	2.10	1.94
Iowa	0.99	1.25	1.63	1.57	1.78	1.27	1.45	1.38	1.61	1.79
Kansas	1.24	1.46	1.53	1.37	1.30	1.72	1.58	1.51	1.62	1.63
Kentucky	0.68	0.70	0.75	0.64	0.89	0.72	0.82	0.73	0.78	0.64
Louisiana	0.20	0.21	0.23	0.21	0.23	0.18	0.17	0.18	0.19	0.14
Maine	0.63	0.72	1.23	0.57	0.66	0.60	0.79	0.78	0.60	0.57
Maryland	1.59	1.83	1.87	1.75	1.97	1.52	1.77	1.84	1.77	1.85
Massachusetts	5.76	4.36	4.16	3.85	4.17	4.40	4.29	4.99	4.76	4.61

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State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Michigan	4.40	4.06	3.79	3.61	3.88	4.03	4.15	4.27	4.06	4.30
Minnesota	2.86	2.42	2.98	2.58	2.43	2.35	2.40	2.43	2.31	2.32
Mississippi	0.37	0.31	0.34	0.31	0.30	0.33	0.25	0.31	0.25	0.25
Missouri	1.30	NA	NA	3.59	NA	2.96	2.94	2.69	2.34	2.29
Montana	0.44	0.48	0.48	0.45	0.40	0.30	0.25	0.54	0.57	0.36
Nebraska	0.68	0.76	0.80	0.67	0.73	0.65	0.66	0.61	0.57	0.60
Nevada	0.48	0.59	0.58	0.65	0.57	0.56	0.45	0.53	0.30	0.43
New Hampshire	3.40	4.07	NA	3.24	3.60	3.11	3.30	3.19	2.86	2.74
New Jersey	4.19	4.34	4.29	3.64	3.15	3.41	2.95	2.83	2.78	3.02
New Mexico	0.91	1.14	1.00	0.86	0.72	0.67	0.77	0.70	0.73	0.71
New York	1.11	1.18	1.07	1.02	1.10	0.99	1.00	1.08	1.15	1.14
North Carolina	2.00	1.76	1.60	1.63	1.70	1.66	2.06	1.97	1.97	2.24
North Dakota	0.51	1.09	0.84	0.77	0.72	0.48	0.47	0.51	0.43	0.57
Ohio	1.67	1.69	1.62	1.58	1.51	1.62	1.63	1.69	1.67	1.61
Oklahoma	0.43	0.44	0.42	0.38	0.44	0.32	0.33	0.36	0.42	0.46
Oregon	2.59	2.85	2.97	3.14	3.17	3.43	3.64	3.94	3.61	3.48
Pennsylvania	2.08	1.88	1.95	1.74	1.76	1.62	1.81	1.74	1.62	1.89
Rhode Island	1.01	1.35	1.12	1.25	1.26	1.02	1.25	1.15	1.53	1.74
South Carolina	1.07	0.91	0.95	0.97	0.99	1.11	0.66	0.68	0.75	0.73
South Dakota	0.43	0.41	0.45	0.37	0.37	0.29	0.41	0.33	0.33	0.35
Tennessee	0.76	0.73	0.68	0.55	0.61	0.58	0.55	0.59	0.55	0.54
Texas	1.32	1.46	1.50	1.32	1.29	1.20	1.16	1.17	1.24	1.25
Utah	1.77	1.95	2.15	2.04	2.28	1.92	2.53	2.28	2.51	2.50
Vermont	1.96	1.93	1.90	1.35	1.56	1.88	1.64	1.19	0.94	0.92
Virginia	1.50	1.89	1.86	1.36	1.59	1.31	1.20	1.32	1.14	0.94
Washington	4.25	4.56	5.49	4.37	4.50	4.23	4.12	4.12	4.16	4.60

## State Indicators

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
West Virginia	0.48	0.64	0.67	0.44	0.43	0.53	0.51	0.46	0.34	0.31
Wisconsin	1.58	1.77	1.69	1.77	1.75	1.71	1.69	1.65	1.73	1.79
Wyoming	0.12	0.17	0.15	0.12	0.14	0.09	0.08	0.18	0.56	0.58
Puerto Rico	NA									

NA = not available

### Note(s):

The national total for business-performed R&D in the United States includes undistributed business-performed R&D and states with suppressed data. Please see source for information on estimation techniques. The national private industry output value for the United States does not include territories.

### Source(s):

National Center for Science and Engineering Statistics, National Science Foundation, Survey of Industrial Research and Development, Business R&D and Innovation Survey, and Business Research and Development Survey (various years), data as of October 2019; U.S. Bureau of Economic Analysis, Gross Domestic Product data (various years), data as of May 2019.

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*Science and Engineering Indicators*

## State Indicators

### Business-Performed R&D as a Percentage of Private-Industry Output

(Percent)

State	2017
United States	2.35
Alabama	1.08
Alaska	2.22
Arizona	2.22
Arkansas	0.43
California	5.34
Colorado	1.54
Connecticut	3.65
Delaware	3.14
District of Columbia	0.45
Florida	0.74
Georgia	1.30
Hawaii	0.24
Idaho	2.79
Illinois	1.93
Indiana	1.97
Iowa	1.82
Kansas	1.59
Kentucky	0.57
Louisiana	0.14
Maine	0.55
Maryland	1.76
Massachusetts	4.85

## State Indicators

State	2017
Michigan	4.66
Minnesota	2.25
Mississippi	0.29
Missouri	1.98
Montana	0.33
Nebraska	0.57
Nevada	0.45
New Hampshire	1.88
New Jersey	3.06
New Mexico	1.12
New York	1.09
North Carolina	2.19
North Dakota	0.67
Ohio	1.70
Oklahoma	0.53
Oregon	3.90
Pennsylvania	1.62
Rhode Island	1.42
South Carolina	0.73
South Dakota	0.45
Tennessee	0.46
Texas	1.43
Utah	1.96
Vermont	0.91
Virginia	1.04
Washington	4.73

## State Indicators

State	2017
West Virginia	0.35
Wisconsin	1.90
Wyoming	0.28
Puerto Rico	NA

NA = not available

**Note(s):**

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Last updated: April 29, 2020

*Science and Engineering Indicators*

## State Indicators

### Business-performed domestic R&D

State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
United States	157,539	169,180	184,129	201,962	202,017	193,868	200,724	208,301	226,159	247,669
Alabama	589 i	845	823	821 i	905	846	992	1,227	1,417	1,835
Alaska	24 i	37 e	82 e	48 e	68	51 e	36 e	35 e	32 e	49 e
Arizona	1,854	1,801	2,109 i	2,182 i	2,707	3,201	2,604	2,570	2,980	3,590
Arkansas	118	213 e	326	400	254 e	225 e	270	287	271	285
California	34,011	32,856	38,169	45,455	44,628	42,177	46,401	46,614	50,683	58,424
Colorado	2,248	3,180	3,266	3,143	3,082	2,823	3,543	4,008	4,299	4,657
Connecticut	3,014	3,346	4,145 i	4,132 i	4,686	6,077	5,834	7,177	7,885	8,273
Delaware	1,009 i	1,356 i	1,295 i	1,468 i	1,232	1,219	1,298	1,059	1,511	1,446
District of Columbia	NA	598 i	268 e	196 e	242	194	235	182 e	166	276
Florida	3,442	3,265	3,482	3,773 i	3,755	3,707	3,155	3,486	4,164	4,139
Georgia	1,273	1,617	1,904	2,159 i	1,912	2,107	2,104	2,160	2,282	2,786
Hawaii	87	55 e	68 e	93 e	93	103	133	131	168	155
Idaho	1,181 i	1,103 i	1,239	1,363	884	992	745	681	642	625
Illinois	6,248	7,318	8,102	8,393 i	8,232	7,616	8,319	8,554	9,712	10,765
Indiana	2,677	2,922	2,863 i	2,888 i	3,583	3,572	3,658	4,208	4,610 i	4,858
Iowa	578	750	730	762	817	753	833	963	1,039	1,055
Kansas	1,136 i	1,384 i	1,448 i	1,327 i	1,299 i	1,427 i	1,675 i	1,804 i	1,993 i	2,064 i
Kentucky	359	606	777	762	636	656	601	565	660	839
Louisiana	172	377 e	516 e	364 e	316 e	248 e	289	311	300	367
Maine	83	137	208	255	249	250 i	200	213	350	253
Maryland	1,425	1,905	2,020	2,213	3,682	3,800	3,118	3,826	3,706	3,421
Massachusetts	8,300	10,367	9,781	10,857	11,756	10,609	11,092	11,819	13,342	15,562
Michigan	13,009	12,554	16,877	17,489 i	14,283	13,565	15,217	15,170	16,752	16,477

## State Indicators

State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Minnesota	3,116	3,367	3,695	3,971	4,355	4,460	5,003	5,199	6,340	6,296
Mississippi	73	183 e	224 e	242 e	219 e	224	199	160	194	231
Missouri	1,290 i	1,505	1,664	1,978	1,792	1,592	1,742	2,151	2,602	2,675
Montana	92	63	92 e	78 e	70 e	66	65	70	77 i	103 i
Nebraska	71	195 e	217 e	335 e	306	342	363	383	407	447
Nevada	380	476	490	433	290	339	383	417	382	535
New Hampshire	652	1,138	1,157	722	1,339	1,153	1,349	1,330	1,435	1,774 i
New Jersey	11,069	11,107	10,145	10,580	10,164	11,566	11,405	10,993	13,214	14,606
New Mexico	1,310 i	1,450 i	1,352 i	1,203 i	231	331	338	450	405	676
New York	9,939 i	10,283	12,260	11,622	10,884	9,234	8,528	8,793	9,474	9,518
North Carolina	3,590	3,483	3,754	4,535	4,437	3,704	4,423	4,565	5,158	5,486
North Dakota	33	46 e	95 e	83 e	347	154	216	379 i	104	120
Ohio	5,608	5,742	6,531	6,245	6,694	6,230	6,258	5,516	5,900	6,852
Oklahoma	428	369	562 e	463	543 e	412	576	410	422	474
Oregon	1,102	1,345	1,408	1,533	2,677	2,320 i	2,956	3,057	3,252	3,419
Pennsylvania	6,609 i	7,393	7,474	8,473	8,967	7,064	7,091	8,005	8,846	9,819
Rhode Island	704 i	1,332 i	1,317 i	1,167 i	1,134 i	1,121	1,203 i	1,320 i	1,387 i	1,330 i
South Carolina	783 i	996	922	1,059	921	1,054	976	961	1,402	1,396
South Dakota	26	40 e	57 e	89 e	87 e	53	75	72	68	95
Tennessee	1,089	2,440	2,205	1,644	1,503	1,289	1,507	1,630	1,246	1,428
Texas	7,265	8,984	8,661	10,048	9,839	10,744	11,008	10,992	12,438	13,334
Utah	1,027	1,119	1,028	1,063	1,173	1,116	996	1,089	1,234	1,274
Vermont	246	114	346	389	339	286 i	360	423	360	360
Virginia	1,767	2,540	2,662	2,683	2,957	2,920	3,492	4,006	4,379	4,816
Washington	6,610 i	7,072 i	7,093 i	8,235 i	8,933 i	8,579	9,220	8,840 i	9,736	11,320
West Virginia	NA	335	351	329	211	264	219	202	242	221

## State Indicators

State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Wisconsin	1,707	1,929	2,194	2,415	2,469 i	2,649 e	2,623	2,645	2,729	3,020
Wyoming	28	20 e	65 e	37 e	28 e	21	37	23	30	27 e
Puerto Rico	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA = not available

*Science and Engineering Indicators*

## State Indicators

### Business-performed domestic R&D

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United States	269,267	290,681	282,393	278,977	294,093	302,250	322,528	340,728	355,821	374,685
Alabama	1,771	3,099	1,562	1,449	1,879	1,284	1,563	1,961	1,561	1,694
Alaska	58 e	69	71	74	84 e	39 e	46	57 e	66 e	34 e
Arizona	3,846	5,232	4,682	4,054	4,931	4,962	5,208	5,499	5,515	6,472
Arkansas	339	443	709	276	344	305	288	317	302	366
California	64,187	67,532	64,939	64,914	75,035	81,689	89,373	98,488	107,982	117,569
Colorado	5,223	4,019	3,960	3,899	4,310	4,105	4,522	4,551	4,362	4,355
Connecticut	9,444	10,518	10,638	6,498	7,504	7,343	8,010	9,093	8,533	7,987
Delaware	1,472	NA	2,046	2,144	2,097	2,415	2,310 i	2,520	2,681	2,069
District of Columbia	379	571	672	235	415	260	488	338	299	328
Florida	4,569	4,178	4,329	5,127	5,988	5,211	5,795	5,783	5,816	6,273
Georgia	2,788	3,344	3,905	3,644	3,839	3,875	4,023	4,635	4,614	5,245
Hawaii	218	269	240	257	252	188	214 i	196	186	164
Idaho	726	961	1,015	1,120 i	1,171	1,079	1,238	1,448	1,554	1,590
Illinois	11,362	8,900	9,188	12,221	12,038	13,001	13,096	12,371	12,710	13,733
Indiana	4,939	4,991	5,220	4,985	6,158	6,044	6,479	5,901	6,252	5,949
Iowa	1,202	1,509	1,943	1,950	2,314	1,763	2,052	2,098	2,539	2,862
Kansas	1,304	1,600	1,616	1,492	1,509	2,072	1,942	1,934	2,126	2,204
Kentucky	890	933	986	889	1,278	1,074	1,279	1,158	1,292	1,070
Louisiana	373 e	411	416	428	459	363 i	354	386	400 i	274
Maine	265	308	530	251	295	275	365	373	298	290
Maryland	3,665	4,333	4,492	4,384	5,101	4,028	4,770	5,124	5,136	5,676
Massachusetts	19,488	15,028	14,422	14,020	15,722	17,491	17,395	21,105	21,484	21,560
Michigan	15,736	13,742	11,999	12,144	13,660	14,912	15,925	17,077	17,136	18,847

## State Indicators

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Minnesota	6,636	5,728	6,880	6,246	6,174	6,216	6,614	6,975	6,820	7,084
Mississippi	279	252	260	243	235	273	211	269	216	222
Missouri	2,736	NA	NA	8,106 i	NA	6,982 i	7,174 i	6,720 i	6,078 i	5,958 i
Montana	134	148	144	145	136	105 i	92	205	225 i	140
Nebraska	489	561	602	527	636	578	627	590	578	604
Nevada	567	677	619	709	638	634	525	631	381	574
New Hampshire	1,814 i	2,169	NA	1,818	2,069	1,857	2,045	2,041	1,932	1,919
New Jersey	17,892	19,054	18,404	15,925	13,930	15,810	14,022	13,743	14,113	15,715
New Mexico	568	735	623	546	472	445	519	499	502	487
New York	10,916	11,455	10,919	10,954	12,072	11,732	12,032	13,818	15,329	15,714
North Carolina	6,829	6,246	5,531	5,749	6,193	6,254	8,083	8,091	8,572	10,064
North Dakota	126	303	231	236	261	222	229	271	211	254
Ohio	7,265	7,405	6,811	6,857	6,993	7,755	8,118	8,945	9,044	8,892
Oklahoma	527	595	509	478	604	463	505	607	661	692
Oregon	3,629 i	4,074	4,080	4,396	4,631	5,156 i	5,635	6,434	6,357	6,523
Pennsylvania	10,387	9,735	9,989	9,246	9,718	9,318	10,761	10,816	10,354	12,300
Rhode Island	411	538	460	531	542	450	571	542	751	875 i
South Carolina	1,426	1,221	1,254	1,316	1,399	1,615	1,016	1,089	1,289	1,301
South Dakota	132	133	143	120	136	112	164	135	139	151
Tennessee	1,638	1,608	1,487	1,244	1,434	1,437	1,423	1,586	1,570	1,610
Texas	13,889	16,166	15,307	14,384	15,309	15,163	15,550	16,373	17,350	17,353
Utah	1,764	1,945	2,083	2,066	2,438	2,134	2,945	2,809	3,274	3,453
Vermont	413	422	418	313	374 i	466 i	406 i	302	247	248
Virginia	4,840	6,142	6,159	4,655	5,562	4,756	4,445	4,994 i	4,486	3,773
Washington	12,687	13,876	16,471	13,545	14,558	14,494	14,860	15,699	16,940	19,673
West Virginia	233	334	349	240	247	305	306	279	201	182

## State Indicators

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Wisconsin	3,411	3,798	3,616	3,927	4,053	4,135	4,227	4,287	4,676	4,972
Wyoming	37 e	63	47	39 e	46 e	30 e	28 e	59	177	172
Puerto Rico	NA									

NA = not available

*Science and Engineering Indicators*

## State Indicators

### Business-performed domestic R&D

State	2017
United States	400,100
Alabama	1,896
Alaska	912
Arizona	6,338
Arkansas	466
California	132,473
Colorado	4,703
Connecticut	8,694
Delaware	2,048
District of Columbia	406
Florida	6,463
Georgia	6,450
Hawaii	169
Idaho	1,747
Illinois	14,399
Indiana	6,283
Iowa	2,938
Kansas	2,212
Kentucky	983
Louisiana	297
Maine	292
Maryland	5,595
Massachusetts	23,655
Michigan	21,042

## State Indicators

State	2017
Minnesota	7,146
Mississippi	266
Missouri	5,299 i
Montana	133
Nebraska	592
Nevada	624
New Hampshire	1,361
New Jersey	16,405
New Mexico	802
New York	15,671
North Carolina	10,246
North Dakota	304
Ohio	9,769
Oklahoma	833
Oregon	7,691
Pennsylvania	10,986
Rhode Island	730
South Carolina	1,370
South Dakota	199
Tennessee	1,407
Texas	21,002
Utah	2,846
Vermont	253
Virginia	4,332
Washington	21,462
West Virginia	212

## State Indicators

State	2017
Wisconsin	5,436
Wyoming	87 i
Puerto Rico	NA

NA = not available

*Science and Engineering Indicators*

## State Indicators

### Private-industry output

State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
United States	7,431,992	7,871,500	8,378,315	8,929,320	9,188,887	9,462,020	9,905,899	10,582,459	11,326,369	12,022,614
Alabama	86,900	91,523	96,333	99,926	102,671	106,584	111,215	122,796	130,877	137,645
Alaska	20,589	18,925	19,352	21,174	22,501	23,203	24,981	27,851	32,223	36,525
Arizona	114,513	124,350	135,267	143,472	148,676	155,166	166,768	177,830	198,493	216,405
Arkansas	52,539	54,787	58,773	60,276	61,484	64,434	68,081	73,763	77,849	81,879
California	935,718	1,005,117	1,095,976	1,202,101	1,206,974	1,248,915	1,330,251	1,426,569	1,539,095	1,648,531
Colorado	117,741	130,750	143,447	158,857	164,142	165,783	170,302	176,943	191,547	202,229
Connecticut	125,376	131,597	137,486	150,091	156,086	158,194	162,788	179,062	187,768	201,109
Delaware	29,897	33,520	36,878	39,669	42,508	41,390	43,250	46,740	47,047	49,907
District of Columbia	31,762	34,214	37,122	39,194	42,231	44,722	47,360	52,245	55,150	57,961
Florida	349,665	375,804	401,299	428,142	452,122	479,820	510,491	556,404	618,485	662,392
Georgia	212,705	233,384	255,580	272,059	280,513	285,704	296,406	318,340	338,131	351,424
Hawaii	29,895	29,648	30,833	32,906	33,960	35,740	38,451	42,482	46,658	49,609
Idaho	25,002	26,317	29,143	32,666	31,802	32,853	34,202	37,194	41,021	43,666
Illinois	374,449	393,060	413,921	439,327	449,989	458,402	471,727	498,386	524,008	556,844
Indiana	153,591	166,936	174,496	183,375	184,404	191,551	201,594	213,904	219,696	226,711
Iowa	73,069	74,500	77,071	81,978	83,140	86,925	92,460	103,497	108,371	112,375
Kansas	64,492	67,780	70,607	74,042	76,050	77,957	80,960	83,158	88,945	96,638
Kentucky	90,514	95,243	100,186	98,900	101,368	105,037	109,008	115,443	122,267	129,161
Louisiana	102,041	105,090	109,962	116,073	120,178	120,504	134,001	148,211	175,204	183,544
Maine	26,319	27,734	29,691	31,825	33,201	34,565	35,896	38,267	39,343	41,093
Maryland	126,485	135,304	144,086	154,008	165,426	174,498	182,682	198,562	214,654	225,273
Massachusetts	210,544	221,621	235,820	259,789	265,380	271,141	281,409	295,341	308,533	322,268
Michigan	267,405	279,669	302,333	314,126	309,407	321,530	332,010	338,470	349,323	349,829

## State Indicators

State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Minnesota	138,612	148,715	155,844	169,695	173,358	180,283	191,867	205,977	217,410	223,325
Mississippi	49,198	51,322	53,481	54,706	55,670	56,822	60,479	63,731	66,849	71,461
Missouri	144,915	150,359	157,164	165,565	168,858	173,216	179,455	188,582	196,877	203,605
Montana	16,035	17,037	17,271	18,071	18,912	19,712	21,135	23,229	25,629	27,725
Nebraska	42,839	44,527	46,261	48,834	51,149	52,618	57,139	60,743	64,149	67,428
Nevada	54,229	58,333	64,141	68,743	72,037	75,864	80,996	93,712	106,575	115,392
New Hampshire	33,828	36,050	37,133	40,217	41,304	43,093	45,394	47,888	49,765	52,461
New Jersey	275,330	286,091	301,401	324,968	334,048	346,189	360,511	375,525	391,073	413,534
New Mexico	40,793	38,548	40,569	42,123	42,097	43,065	47,043	52,898	56,142	59,454
New York	636,381	658,862	701,925	742,467	779,585	785,919	800,131	844,148	899,499	952,386
North Carolina	204,407	214,737	230,929	240,557	251,373	259,248	267,987	283,842	304,831	332,776
North Dakota	13,185	14,196	14,340	15,131	15,884	16,907	18,534	19,436	20,617	22,109
Ohio	304,851	321,758	334,762	347,115	350,328	364,913	375,979	394,548	413,299	423,175
Oklahoma	66,190	67,850	69,896	75,814	80,805	82,147	87,524	94,572	104,546	115,679
Oregon	87,471	91,205	92,742	101,705	100,502	103,804	109,347	117,816	124,593	134,707
Pennsylvania	318,044	333,248	348,669	364,847	378,861	388,239	403,838	427,448	449,396	467,859
Rhode Island	24,520	26,195	27,529	29,409	30,691	32,579	34,370	36,938	38,572	40,846
South Carolina	82,888	88,245	93,655	97,416	101,054	104,916	109,938	113,607	119,655	126,441
South Dakota	16,251	17,305	18,026	19,478	20,325	22,973	23,873	25,873	26,773	27,843
Tennessee	135,556	147,450	154,937	160,528	164,469	171,590	179,785	192,743	200,276	211,308
Texas	539,638	572,809	603,847	655,780	684,761	692,501	729,295	802,089	876,490	969,400
Utah	48,577	52,902	56,089	59,742	62,091	64,327	67,034	72,972	80,564	91,597
Vermont	13,393	13,963	14,919	15,919	16,683	17,409	18,163	19,481	20,159	20,803
Virginia	176,532	191,229	205,885	220,331	235,675	241,424	254,528	272,488	297,005	312,603
Washington	165,599	180,470	199,479	205,505	205,441	211,919	220,106	230,209	253,557	271,415
West Virginia	32,842	33,896	35,204	35,662	36,738	37,761	38,480	40,724	44,123	47,101

## State Indicators

State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Wisconsin	136,313	144,853	153,443	160,551	166,272	172,027	179,084	190,209	199,867	208,798
Wyoming	12,366	12,471	13,116	14,466	15,706	15,933	17,596	19,575	23,391	28,368
Puerto Rico	NA									

NA = not available

*Science and Engineering Indicators*

## State Indicators

### Private-industry output

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
United States	12,564,795	12,731,237	12,403,880	12,884,089	13,405,520	14,037,519	14,572,341	15,250,030	15,878,808	16,319,357
Alabama	141,321	143,302	137,477	143,259	149,297	154,281	159,253	161,018	166,474	168,911
Alaska	40,740	46,199	40,540	43,556	46,420	47,421	46,530	45,074	40,081	38,857
Arizona	228,512	223,622	208,885	211,727	220,930	230,468	236,536	245,693	257,668	270,894
Arkansas	83,996	85,546	83,158	87,295	91,354	93,811	98,908	101,802	102,885	104,283
California	1,713,469	1,736,169	1,665,582	1,716,935	1,786,928	1,880,555	1,988,551	2,108,317	2,252,390	2,347,499
Colorado	216,367	223,731	215,726	221,241	230,258	238,838	252,662	269,116	278,650	288,322
Connecticut	214,436	216,747	212,747	213,620	212,227	219,551	221,583	223,187	232,912	236,025
Delaware	50,707	48,914	50,691	51,273	54,016	55,617	54,234	60,758	64,298	63,636
District of Columbia	62,453	66,036	65,175	67,733	70,666	73,329	75,306	79,281	83,544	86,676
Florida	675,719	654,972	626,559	637,732	648,069	669,148	698,825	735,962	789,643	831,458
Georgia	361,965	358,712	350,416	358,388	370,310	384,522	400,900	423,774	448,952	473,907
Hawaii	51,864	52,699	51,091	53,085	54,707	57,485	59,611	61,113	65,454	68,265
Idaho	46,275	47,672	45,752	47,186	48,514	49,561	52,629	55,097	57,275	59,988
Illinois	581,222	577,407	573,534	587,996	613,968	645,806	661,960	687,416	713,462	726,595
Indiana	243,234	245,722	233,440	252,091	260,606	269,370	280,750	294,436	298,392	306,260
Iowa	121,867	120,669	119,365	124,051	129,703	139,258	141,642	151,982	157,715	159,564
Kansas	105,209	109,512	105,892	108,663	115,757	120,746	123,207	127,876	131,251	135,081
Kentucky	131,479	133,398	131,023	138,220	143,597	149,608	155,259	159,461	164,716	167,761
Louisiana	184,941	192,544	181,623	199,083	201,848	206,824	202,481	211,605	207,444	200,852
Maine	42,051	42,602	43,082	44,155	44,499	45,504	46,200	48,025	49,445	51,215
Maryland	230,795	236,334	239,623	250,137	258,669	264,748	269,574	278,431	290,587	306,204
Massachusetts	338,212	344,873	346,702	364,511	377,301	397,574	405,934	423,340	450,975	467,555
Michigan	357,311	338,078	316,993	336,754	352,405	370,283	383,572	399,534	422,202	437,804

## State Indicators

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Minnesota	231,736	236,225	230,795	241,987	254,249	264,261	275,029	287,550	295,454	304,740
Mississippi	75,385	80,230	76,056	77,974	79,073	82,185	83,856	85,425	87,220	87,935
Missouri	210,644	219,587	219,373	225,700	227,245	235,680	243,832	250,104	259,200	260,347
Montana	30,546	31,072	29,995	31,881	34,261	35,569	36,721	37,873	39,388	38,529
Nebraska	72,330	73,883	75,330	79,021	86,665	89,107	94,444	97,365	100,753	101,256
Nevada	118,520	115,584	106,907	108,888	112,011	113,418	115,607	119,469	127,816	133,321
New Hampshire	53,382	53,239	54,247	56,111	57,487	59,743	62,046	63,987	67,478	69,968
New Jersey	426,793	439,058	428,787	437,017	442,764	463,363	474,543	486,193	507,843	519,925
New Mexico	62,190	64,602	62,247	63,681	65,960	66,534	67,094	70,931	69,102	68,830
New York	982,939	967,451	1,016,494	1,072,563	1,094,678	1,179,435	1,204,331	1,274,635	1,333,033	1,383,684
North Carolina	341,561	354,668	345,575	352,299	363,470	376,483	391,503	409,831	435,046	448,838
North Dakota	24,575	27,768	27,529	30,544	36,196	46,284	48,926	53,228	49,131	44,876
Ohio	434,833	437,452	421,126	435,340	463,423	477,613	496,803	527,805	542,636	552,821
Oklahoma	121,966	135,307	120,134	126,446	138,134	146,833	155,129	167,429	156,172	149,308
Oregon	140,241	142,796	137,412	140,173	146,015	150,219	154,656	163,495	176,294	187,213
Pennsylvania	499,321	518,552	512,336	532,707	552,873	575,586	595,592	621,559	639,188	652,507
Rhode Island	40,731	39,916	40,930	42,390	42,850	44,326	45,845	47,128	49,231	50,220
South Carolina	133,857	134,526	132,034	136,104	141,640	146,048	152,788	160,878	171,195	178,985
South Dakota	30,555	32,333	31,644	32,634	36,633	38,583	40,092	41,112	42,617	43,140
Tennessee	216,365	220,586	217,731	224,241	234,534	248,999	257,281	267,619	285,455	296,628
Texas	1,054,512	1,105,669	1,023,692	1,091,317	1,184,471	1,259,816	1,345,638	1,403,714	1,398,228	1,388,675
Utah	99,451	99,910	96,963	101,053	107,005	111,291	116,578	122,955	130,521	138,033
Vermont	21,077	21,878	22,010	23,183	24,009	24,783	24,796	25,360	26,218	27,059
Virginia	322,179	324,656	331,809	342,919	350,858	361,870	370,798	377,182	394,519	401,818
Washington	298,590	304,200	299,974	310,262	323,747	343,005	360,292	381,325	407,505	427,657
West Virginia	48,831	51,881	52,240	54,347	57,398	57,909	59,422	60,458	58,649	58,115

## State Indicators

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Wisconsin	215,437	215,070	214,458	222,444	231,749	241,375	249,549	259,792	270,873	277,586
Wyoming	32,105	37,679	30,979	32,175	34,072	32,894	33,044	33,335	31,625	29,737
Puerto Rico	NA									

NA = not available

*Science and Engineering Indicators*

## State Indicators

### Private-industry output

State	2017	2018
United States	17,031,690	17,989,359
Alabama	176,212	185,165
Alaska	41,001	43,137
Arizona	284,870	304,435
Arkansas	107,698	111,928
California	2,482,912	2,635,482
Colorado	304,922	325,184
Connecticut	238,215	246,398
Delaware	65,220	67,921
District of Columbia	90,638	95,657
Florida	869,652	923,848
Georgia	495,541	520,278
Hawaii	71,235	74,045
Idaho	62,715	66,969
Illinois	745,262	781,957
Indiana	318,342	333,571
Iowa	161,631	168,672
Kansas	139,139	145,537
Kentucky	173,096	180,120
Louisiana	210,528	223,982
Maine	53,084	55,566
Maryland	318,180	331,126
Massachusetts	487,290	512,600
Michigan	451,935	473,201

## State Indicators

State	2017	2018
Minnesota	317,368	332,150
Mississippi	90,680	94,508
Missouri	267,491	280,849
Montana	39,833	41,697
Nebraska	103,321	107,642
Nevada	139,207	147,763
New Hampshire	72,580	75,976
New Jersey	536,677	561,643
New Mexico	71,770	76,584
New York	1,435,736	1,499,123
North Carolina	466,841	493,701
North Dakota	45,516	48,592
Ohio	574,997	604,053
Oklahoma	157,763	169,800
Oregon	197,005	208,726
Pennsylvania	678,752	713,624
Rhode Island	51,544	53,127
South Carolina	187,366	195,278
South Dakota	43,959	45,827
Tennessee	308,531	325,200
Texas	1,473,180	1,591,095
Utah	145,035	155,746
Vermont	27,925	28,905
Virginia	416,084	438,145
Washington	454,092	492,129
West Virginia	61,288	65,595

## State Indicators

State	2017	2018
Wisconsin	286,440	301,925
Wyoming	31,395	33,176
Puerto Rico	NA	NA

NA = not available

*Science and Engineering Indicators*